

IN THE CLAIMS

The following listing of the claims is provided in accordance with 37 C.F.R. §1.121.

1. (original) A rotating electrical machine, comprising:
a superconductive rotor coil; and
a rotatable shaft, comprising:
an axial passageway extending through the rotatable shaft; and
a first passageway extending through a wall of the rotatable shaft to the axial passageway, wherein the axial passageway and the first passageway are operable to convey a cryogenic fluid to the superconductive rotor coil.
2. (original) The rotating electrical machine as recited in claim 1, further comprising a second passageway extending through the wall of the rotatable shaft to the axial passageway.
3. (original) The rotating electrical machine as recited in claim 2, further comprising a first axial tube and a second axial tube disposed telescopically within the axial passageway.
4. (original) The rotating electrical machine as recited in claim 2, further comprising a first axial tube and a second axial tube disposed side-by-side within the axial passageway.
5. (original) The rotating electrical machine as recited in claim 3, wherein the first passageway is coupled to the first axial tube and the second passageway is coupled to the second axial tube.

6. (original) The system as recited in claim 3, wherein the first axial tube and the second axial tube are doubled walled.
7. (original) The rotating electrical machine as recited in claim 3, wherein the first axial tube and the second axial tube each comprise a coating operable to reduce the emissivity of the first axial tube and the second axial tube to reduce radiative heat transfer to the cryogenic fluid.
8. (original) The rotating electrical machine as recited in claim 2, further comprising a cryogenic transfer coupling disposed radially around the rotatable shaft, wherein the cryogenic transfer coupling is operable to direct cryogenic fluid to the first passageway and to receive cryogenic fluid from the second passageway.
9. (original) The rotating electrical machine as recited in claim 1, wherein the rotating electrical machine is a generator comprising a stator.
10. (original) The rotating electrical machine as recited in claim 1, wherein the first passageway and the second passageways extend radially through the rotatable shaft.
11. (original) A system for cryogenically cooling a superconductive rotor coil, comprising:
a transfer coupling operable to be disposed radially around a rotatable shaft to couple cryogenic fluid between a source of cryogenic fluid and a passageway extending through the rotatable shaft, wherein the cryogenic fluid is coupled from the rotatable shaft to the superconductive rotor coil.

12. (original) The system as recited claim 11, wherein the transfer coupling comprises a rotatable member secured to the rotatable shaft and a stationary member disposed in sealing arrangement with the rotatable member.

13. (original) The system as recited claim 11, wherein the stationary member is aligned to direct cryogenic fluid into a first passageway in the rotatable shaft and to receive cryogenic fluid from a second passageway in the rotatable shaft.

14. (original) The system as recited in claim 13, further comprising a first axial tube and a second axial tube disposed within the rotatable shaft, wherein the first passageway directs cryogenic fluid into the first axial tube and the second passageway receives cryogenic fluid from the second axial tube.

15. (original) The system as recited in claim 14, wherein the first axial tube and the second axial tube are oriented in a telescopic orientation.

16. (original) The system as recited in claim 14, wherein the first axial tube and the second axial tube are oriented in a side-by-side orientation.

17. (original) The system as recited in claim 13, wherein the first axial tube and the second axial tube are double walled vacuum-sealed tubes.

18. (original) The system as recited in claim 13, wherein the first axial tube comprises a coating operable to reduce radiative heat transfer from the first axial tube to the cryogenic fluid.

19. (original) The system as recited in claim 13, comprising a first radial tube disposed in the first passageway to thermally insulate the cryogenic fluid flowing through the first passageway from the rotatable shaft.

20.-41. (canceled).